

IN THE CLAIMS:

The following is a complete listing of the claims, and replaces all earlier version and listings.

Claims 1. - 4. (cancelled).

Claim 5. (currently amended): A time-series data display method for displaying accumulated time-series data items, comprising the steps of:

displaying a plurality of rings in a nested form in a display screen, each ring representing a respective predetermined time/date and having data items along its circumference, wherein data items along an inner ring are displayed smaller, while data items along an outer ring are displayed larger;

displaying first data items associated with a first time in which said first data items have been picked up, in a first size and along a first ring of the plurality of rings;  
and

displaying second data items associated with a second time following that is different from the first time and in which that is the time at which the second data items have been picked up, in a second size different from the first size and along a second ring of the plurality of rings, so that a change difference of size between the first and second sizes corresponds to a temporal direction between the first time and the second time,

wherein when zoom-in operation is instructed, sizes of every ring and of every data item are enlarged, a new ring associated with a new time and data items along the new ring are displayed in a center area of the plurality of rings and an outermost ring

and data items along the outermost ring are deleted from the display screen, and when zoom-out operation is instructed, sizes of every ring and of every data item are reduced, an innermost ring and data items along the innermost ring are deleted from a display screen and a new ring associated with a new time and data items along the new ring are displayed in an area outside of the plurality of rings.

Claim 6. (previously presented): A time-series data display method according to claim 5, wherein the distinguishable display is such that the display screen for the second data items is displayed with a smaller size than one for the first data items.

Claim 7. (previously presented): A time series data display method according to claim 6, wherein the first data items are displayed at an outermost position in a display screen, and the second data items are displayed inside the first data items with a display area thereof made smaller.

Claim 8. (previously presented): A time-series data display method according to claim 7, wherein third data items associated with a time contiguous to the time of the second data items are retrieved, and the third data items are displayed inside the second data items with a display area thereof made smaller.

Claim 9. (previously presented): A time-series data display method according to claim 5, wherein a display of each date is limited to a given number of data

items, and wherein, when the number of data items exceeds the given number, the data items are classified in units of a finer date and displayed distinguishably.

Claim 10. (previously presented): A time-series data display method according to claim 8, wherein, when zoom-in is designated for a screen display, the display positions of the first to third data items are shifted outward and the display areas thereof are made larger.

Claim 11. (previously presented): A time-series data display method according to claim 10, wherein, when the zoom-in is continued for a designated period of time, the first data items are moved out of a display screen, and new data associated with a date contiguous to a date of data displayed at an innermost position is retrieved and displayed at the innermost position.

Claim 12. (previously presented): A time-series data display method according to claim 10, wherein, when zoom-out is designated for a screen display, the display positions of the first to third data items are shifted inward and the display areas thereof are made smaller.

Claim 13. (previously presented): A time-series data display method according to claim 12, wherein, when the zoom-out is continued for a designated period of time, data displayed at an innermost position is moved out of a display screen, and new data associated with a date contiguous to a date of data displayed at an outermost position

is retrieved and displayed at an outermost position is retrieved and displayed at the outermost position.

Claim 14. (previously presented): A time-series data display method according to claim 12, wherein, when the zoom-in or zoom-out is designated in a screen, a speed of shifting display positions is varied depending on a designated position in the screen.

Claim 15. (original): A time-series data display method according to claim 5, wherein graphics such as rings or squares representing dates associated with displays are nested and displayed together with representations of data items.

Claim 16. (previously presented): A time-series data display method according to claim 15, wherein the nested display is realized by arranging the graphics such as rings or squares representing dates associated with displays concentrically in units of a given date, and then displaying data items orderly in the graphics.

Claim 17. (previously presented): A time-series data display method according to claim 15, wherein the graphics such as rings or squares representing dates associated with displays are displayed in different colors associated with the dates.

Claim 18. (currently amended): A time-series data display method according to claim 16, wherein the data items along a given one of the plurality of rings are positioned along that ring in the graphics at random.

Claim 19. (previously presented): A time-series data display method according to claim 18, wherein the random positions are specified at the time of data registration.

Claim 20. (previously presented): A time-series data display method according to claim 5, wherein the accumulated time-series data items include data items accumulated in one-to-one correspondence to dates of creation of data files, data items accumulated in one-to-one correspondence to dates of correction of files, and data items accumulated in one-to-one correspondence to designated dates registered by a user.

Claim 21. (canceled).

Claim 22. (currently amended): An information processing system for displaying accumulated time-series data items, comprising:

a storage means for storing data picked up in one-to-one correspondence to times; and

a displaying means for displaying a plurality of rings in a nested form, each representing a respective predetermined time/date and having data items along it, with data items along an inner ring being displayed smaller, while data items along an outer ring are

displayed larger, first data items of a first time in which the first data item has been picked up, in a first size and along a first ring of the plurality of rings, and second data items of a second time following that is different from the first time and in-which that is the time at which the second data items have been picked up, in a second size different from the first size and along a second ring of the plurality of rings, so that a change difference of size between the first and second sizes corresponds to a temporal direction between the first time and the second time[[s]],

wherein when zoom-in operation is instructed, sizes of every ring and of every data item are enlarged, a new ring associated with a new time and data items along the new ring are displayed in a center area of the plurality of rings and an outermost ring and data items along the outermost ring are deleted from a display screen, and when zoom-out operation is instructed, sizes of every ring and of every data item are reduced, an innermost ring and data items along the innermost ring are deleted from the display screen and a new ring associated with a new time and data items along the new ring are displayed in an area outside of the plurality of rings.

Claim 23. (previously presented): An information processing system according to claim 22, wherein said displaying means displays a display screen for the data items associated with a time contiguous to the desired time with a smaller size than a display screen for the data items of the desired time according to an elapsed time.

Claim 24. (previously presented): An information processing system according to claim 23, wherein said displaying means displays the data items of the desired

time at an outermost position in a display screen, and displays the data items of a time contiguous to the desired time inside the data items of the desired date with a display area therefore made smaller according to an elapsed time.

Claim 25. (previously presented): An information processing system according to claim 22, wherein said displaying means includes a display limiting means for limiting a display of each time to a given number of data items, and a display dividing means that when the number of data items exceeds the given number, classifies the data items in units of a finer time and displays the data times mutually distinguishably.

Claim 26. (previously presented): An information processing system according to claim 25, wherein said storage means includes a subdividing and accumulating means for subdividing a data accumulation unit into finer units of time in the event that the number of data items should exceed the given number, and then accumulating data items.

Claim 27. (original): An information processing system according to claim 24, further comprising a zoom designation means for use in designating zoom-in or zoom-out for a screen display, and a zoom control means that, when zoom-in is designated, shifts the display positions of data items outward so as to increase the display areas thereof, and that when zoom-out is designated, shifts the display positions of data items inward so as to decrease the display areas thereof.

Claim 28. (previously presented): An information processing system according to claim 27, wherein, when zoom-in is designated, said zoom control means moves the data items of the desired time out of a display screen, retrieves new data items associated with a time contiguous to a time of data items displayed at an innermost position, and displays new data items at the innermost position, and when zoom-out is designated, said zoom control means moves the data items displayed at the innermost position out of a display screen, retrieves new data items associated with a time contiguous to a time of data items displayed at an outermost position, and displays new data items at the outermost position.

Claim 29. (previously presented): An information processing system according to claim 27, wherein said zoom designation means includes a designation input means for making a designation in a screen, and said zoom control means varies a speed of shifting display positions depending on a designated position in the screen.

Claim 30. (previously presented): An information processing system according to claim 22, wherein said displaying means includes a means for displaying graphics such as rings or squares representing times associated with displays concentrically in units of a given time, and a means for displaying data items orderly in the graphics and wherein the graphics such as rings or squares representing times associated with displays are nested and displayed together with representations of data items.



Claim 31. (previously presented): An information processing system according to claim 30, wherein said displaying means displays the graphics such as rings or squares representing times associated with displays in different colors associated with the times.

Claim 32. (currently amended): An information processing system according to claim 30, wherein said displaying means positions the data items that are along a given one of the plurality of rings, in the graphics at random along that ring.

Claim 33. (previously presented): An information processing system according to claim 32, wherein said storage means determines the random positions at the time of data registration.

Claim 34. (previously presented): An information processing system according to claim 22, wherein said stored time-series data items include data items stored in one-to-one correspondence to times of creation of data files, data items stored in one-to-one correspondence to times of correction of files, and data items stored in one-to-one correspondence to designated times registered by a user.

Claims 35. - 111. (cancelled).

Claim 112. (currently amended): A computer program product comprising a computer usable medium having computer readable program code means for displaying accumulated time-series data items, said computer program product including:

computer readable program code means for displaying a plurality of rings in a nested form, each representing a respective predetermined time/date and having data items along it, with data items along an inner ring being displayed smaller, while data items along an outer ring are displayed larger, first data items associated with a first time in which the first data items have been picked up, in a first size and along a first ring of the plurality of rings, and second data items associated a second time following that is different from the first time and in which that is a time at which the second data items have been picked up, in a second size different from the first size and along a second ring of the plurality of rings, so that a change difference of size between the first time and the second sizes corresponds to a temporal direction between the first time and the second time[[s]],

wherein when zoom-in operation is instructed, sizes of every ring and of every data item are enlarged, a new ring associated with a new time and data items along the new ring are displayed in a center area of the plurality of rings and an outermost ring and data items along the outermost ring are deleted from a display screen, and when zoom-out operation is instructed, sizes of every ring and of every data item are reduced, an innermost ring and data items along the innermost ring are deleted from the display screen and a new ring associated with a new time and data items along the new ring are displayed in an area outside of the plurality of rings.

Claim 113. (previously presented): A computer program product according to claim 112, further including computer readable program code means for zooming in the first and second data items by shifting data in a direction of the second data items to the first data items and making a display area larger, and for zooming out the first and second data items by shifting data in a direction of the first data items to the second data items and making the display area smaller.

Claim 114. (previously presented): A computer program product according to claim 112, the computer usable medium further having time-series data to be used by said computer readable program code means.

Claims 115. - 128. (cancelled).

Claim 129. (previously presented): A time series data display method according to claim 5, wherein new data items on the temporal direction are displayed in relatively large size while old data items on the temporal direction are displayed in relatively small size.

Claim 130. (previously presented): A time series data display method according to claim 5, wherein data items on a perimeter of a screen are displayed in relatively large size while data items on a center of the screen are displayed in relatively small size.

Claim 131. (previously presented): An information processing system according to claim 22, wherein said display means displays new data items on the temporal direction in relatively large size while displaying old data items on the temporal direction in relatively small size.

Claim 132. (previously presented): An information processing system according to claim 22, wherein said display means displays data items on a perimeter of a screen in relatively large size while displaying data items on a center of the screen in relatively small size.

Claim 133. (previously presented): A computer program producing according to claim 112, wherein a new data item on the temporal direction is displayed in relatively large size while old data items on the temporal direction are displayed in relatively small size.

Claim 134. (previously presented): A computer program product according to claim 112, wherein data items on a perimeter of a screen are displayed in relatively large size while data items on a center of the screen are displayed in relatively small size.

Claim 135. (new): An information processing apparatus for displaying accumulated time-series data items, comprising:

displaying means for displaying a plurality of rings in a nested form, each representing a respective predetermined time/date and having data items along it, wherein

data items along an inner ring are displayed smaller, while data items along an outer ring are displayed larger;

displaying means for displaying first data items associated with a first time at which the first data items have been picked-up, in a first size and along a first ring of the plurality of rings; and

displaying means for displaying second data items associated with a second time different from the first time and at which the second data items have been picked-up, in a second size different from the first size and along a second ring of the plurality of rings, so that a difference of size between the first and second sizes corresponds to a temporal direction between the first time and the second time, wherein when zoom-in operation is instructed, sizes of every ring and of every data item are enlarged, a new ring associated with a new time and data items along the new ring are displayed in a center area of the plurality of rings and an outermost ring and data items along the outermost ring are deleted from a display screen, and when zoom-out operation is instructed, sizes of every ring and of every data item are reduced, an innermost ring and data items along the most inside ring are deleted from a display screen and a new ring associated with a new time and data items along the new ring are displayed in an area outside of the plurality of rings.

Claim 136. (new) An information processing apparatus according to claim 135, wherein new data items on a temporal direction are displayed in relatively large size while old data items on the temporal direction are displayed in relatively small size.

Claim 137. (new) An information processing apparatus according to claim 135, wherein data items on a perimeter of a screen are displayed in relatively large size while data items on a center of screen are displayed in relatively small size.